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AUTHOR Garrett, Mark D.
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ABSTRACT

Using data from the 1986-1990 Cooperative Institutional Research Program (CIRP) dataset, this study examined the effect of college male athletic participation in the sports of football or basketball as compared to participation in other "minor" sports on academic performance as measured by grade point average. Results indicate that the type of sport in which one participates is not a significant predictor of academic performance. (Contains 2 tables and 11 references.) (Author/SLD)

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Predictors of Academic Success for Male Student-Athletes: A Comparison of Traditional Measures, Noncognitive Variables, and Type of Sport Participation

By

Mark D. Garrett

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Predictors of Academic Success for Male Student-Athletes: A Comparison of Traditional Measures, Noncognitive Variables, and Type of Sport Participation

Abstract

Using data from the 1986-1990 Cooperative Institutional Research Program (CIRP) dataset, this study examines the effect of college male athletic participation in the sports of football or basketball as compared to participation in other "minor" sports on academic performance, as measured by GPA. Results indicate that the type of sport one participates in is not a significant predictor of academic performance.

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Introduction:

Throughout the history of college sports there have been numerous proponents advocating the positive results of participation for the student-athlete. There have also been many who are opposed to its inclusion on college campuses, questioning its value in the academic setting. It is often the case that any type of negative event or research study is quickly reported in the national media. These reports have helped to reinforce the stereotype of the "dumb jock" that seems to be so prevalent in American society. However, there have been a number of research studies conducted on male and female college student-athletes which help to shine a truer light on the impact of participation in intercollegiate athletics. These studies, which have been conducted in a rigorous fashion, have looked at academic performance, leadership skills, interpersonal skills, career maturity, etc. In addition, there have been other studies that have attempted to determine predictors for academic success among student-athletes. With much of the controversy over the National Collegiate Athletic Association's Proposition 48, which requires an entering student-athlete to have a high school GPA of at least 2.0 in specific courses and a combined SAT score of 700 or an ACT score of 17 in order to be eligible to compete during their first year in college (NCAA, 1993), it is important to determine what factors are the best predictors of academic success.

Literature Review:

Ryan (1989) found that athletic participation has a positive net impact on the development of leadership and interpersonal skills during college. Pascarella and Smart (1990) conducted a study to determined whether participation in intercollegiate athletics influenced bachelor's degree attainment. Controlling for factors such as socioeconomic status, secondary school achievement, educational aspirations, college selectivity and college grades, male athletes had a small but significantly greater likelihood of earning a bachelor's degree within nine years than their nonathlete counterparts. Hood, Craig and Ferguson (1992) raise a very interesting issue. In their study they compared freshmen athletes who participated in revenue and non-revenue producing sports to their equal, non-athletic counterparts. In terms of comparison, the researchers matched up participants in terms of gender, ethnicity, and academic aptitude test scores. The researchers found that when compared to their equivalent non-athletes, those athletes in

both revenue and non-revenue sports faired about the same in terms of academic performance.

In the area of graduation, while it has been shown that athletes who participate in successful Division I-A football programs have low graduation rates, this is not necessarily true of those athletes who participate in the lower NCAA division levels. Amato, Gandar, Tucker and Zuber (1996) found in their research that there did not appear to be a negative relationship between participation in football at the Division I-AA level and graduation rates.

On the negative side for male athletes, especially those that participate in Division I football and basketball on high-profile teams, their graduation rates are significantly lower than those of the general student body (Easterbrook, 1998). Hood, Craig and Ferguson (1992) found that students, both athletes and non-athletes, who are admitted to the institution in question under circumstances in which their standardized test-scores are below the Proposition 48 standard are likely to have difficulty succeeding academically. Pascarella, Bohr, Nora and Terenzini (1995) found that participation in college sports resulted in a significant difference between male athletes and non-athletes in terms of their end-of-freshmen year reading comprehension and mathematical skills, with athletes scoring lower in both of those areas than non-athletes. Further analysis indicated that male athletes in revenue-producing sports such as football and basketball had significantly lower end-of-freshmen year average reading-comprehension and mathematics scores than both athletes who competed in non-revenue producing sports and non-athletes.

Predictors of academic success:

What are predictors of academic success for student-athletes? Russell and Petrie (1992) found through their research that a consideration of multiple nonacademic variables, such as life stress, trait anxiety, or locus of control in combination with traditional variables, such as standardized test scores, might be a more accurate predictor of academic success than just academic variables, especially for minority students. Walters et al (1987) found that traditional academic variables predict only a small portion (less than 20 percent) of the variance of student athletes' academic success. This raises the question as to what are the variables that explain the majority of the variance in academic GPA among student athletes?

While much has been written about the value of a student's Scholastic Aptitude Test (SAT) score or American College Test (ACT) score as an indicator for academic success in college, Sedlacek and Adams-Gaston (1992) argue against its use with student-

athletes. In their study, the authors found that SAT or ACT scores were a poor predictor of first-semester GPA among student-athletes at a university competing at the Division I level. They argue that student-athletes should be conceptualized as nontraditional students. Athletes tend to have a unique culture and set of experiences in life that differentiate them from others. They also tend to be subjected to discrimination and prejudice much like groups thought of as "minority" cultures. Research has shown that noncognitive variables, such as self-concept, realistic self-appraisal, long range goals, leadership, etc. are better predictors of academic success for nontraditional students than standardized test scores.

Does the type of sport that an athlete participates in have an impact on his or her academic success? The previously mentioned study by Pascarella and Smart indicated a small, but significantly greater likelihood of athletes earning a bachelor's degree as compared to their nonathlete counterparts. However, their study did not desegregate the impact on educational attainment of athletes that participate in different kinds of sports. On the other hand the results from the previously mentioned study by Pascarella, Bohr, Nora and Terenzini indicates that the type of sport a male athlete participated in can have an effect on his academic success.

The central goal of this study is to examine the impact of variables other than SAT scores as predictors of male student-athletes' academic achievement. Specifically, I hope to determine if the type of sport an athlete participates in is a predictor of his academic success.

Research Strategy

In order to examine the impact of variables other than SAT scores as predictors of academic success, I used the data collected through the Cooperative Institutional Research Program (CIRP), which is a continuing program of research sponsored by the American Council on Education and the Higher Education Research Institute (HERI) at the University of California, Los Angeles. The CIRP freshman survey program annually collects a broad array of student background information using the Student Information Form (SIF). Samples of SIF respondents are then followed-up at various points of time using the Follow-up Survey (FUS) instrument, and these data are used in combination to longitudinally assess the impact of college on students (Dey, 1997).

I initially decided to determine the impact, if any, of the sport a male athlete participates in on his academic performance. I separated the pool of male athletes into two groups: Those that indicated they had participated in football or basketball, and those that indicated they participated in and "other" sport. There were some athletes who

indicated on the survey that they had participated in both football/basketball and "other" sports. For those athletes, I placed them in the football/basketball category.

I expect to find the following:

I. There will be a difference in academic performance between the two groups.

II. Those athletes who indicated they participated in football or basketball will perform at a lower level academically as compared to the athletes who indicated they participated in and "other" sport.

Once the results of this analysis were complete, I decided to look at other variables that may be predictors of academic success for male student-athletes. Specifically, I attempted to determine the impact of race, socioeconomic status, standardized test scores, long-term goals, and academic self-assessment as predictors of academic success.

I expect to find the following:

I. Besides type of sport played, both a student-athlete's race and socioeconomic status will be significant predictors of academic success.

Methodology

In order evaluate academic success, I used the students' self-reported GPA as the defining measure and the dependent variable. I created a variable called STATUS in which I separated male athletes into two groups: one group that indicated they had participated in either football or basketball, and a second group who indicated they had participated in a sport other than football or basketball. I performed a t-Test and a simple regression on these two variables to determine if they were related, and how much of the variance in GPA is accounted for by the type of sport a male college athlete participates in. These variables and the results of both the t-Test and the regression are shown in Table 1.

My next step was to determine the impact of other variables as predictors of academic success for student-athletes. Besides my STATUS variable, I added five more variables to my model.

The first variable added I called SES which was to be a measure of socioeconomic status, and this variable was simply the student athlete's parental income. I believe that the parental income of the student would be an adequate measure of SES for this study.

The second variable added was called RACE. I created this variable by splitting all of the male student-athletes into two categories: One category consisted of those athletes that indicated they were Caucasian. The second category was for any other type of athlete in terms of their response to what their race was. With this race variable, I wanted to compare White students to minorities.

My third variable was called SATC and was a simple mathematical combination of the student's self-reported verbal and math SAT scores. This variable was meant to represent standardized tests.

Sedlacek and Adams-Gaston found in their study that noncognitive variables are better predictors of academic success for student-athletes than standardized test scores. Specifically, they found significant relationships between students' first-semester grades and the following noncognitive variables: *Self-concept, realistic self-appraisal, understanding racism, long-range goals, support person, leadership, community, and nontraditional knowledge.* I wanted to determine if some of these variables would have an impact as predictors of academic success for student-athletes in my model. I used the students' self-reported answer to the question that asked them to rate their academic ability as one of the noncognitive variables outline by Sedlacek and Adams-Gaston, *realistic self-appraisal*. In the CIRP questionnaire, students are asked to rank themselves in terms of their perceived academic ability. They are given the options of "Lowest 10%", "Below Average", "Average", "Above Average", "Highest 10%". This question appeared to closely match Sedlacek and Adams-Gaston's *realistic self-appraisal* variable. Next, I used the students' answer to the question of their degree aspirations as another one of the noncognitive variables, *long-range goals*. In the CIRP questionnaire, students are asked to indicate their highest degree aspirations. They are given the option of "none", "vocational certificate", "associate's degree", "bachelor's degree", "master's", "doctorate", "medical", "law", "divinity", and "other". Once again, this question appeared to closely match Sedlacek and Adams-Gaston *long-range goals* variable.

With this new model, I performed a multiple regression to hold each variable constant, and to determine the impact of each as a predictor of student-athletes' academic success. The results of this regression are shown in Table 2.

Limitations

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There are obvious limitations to this research study. The first would be the reliability of the students' self-reported GPA. It is possible that students might inflate their GPA, especially if they were doing poorly at the time that they completed the survey. It is also possible that the information on parental income might be incorrect. Students coming from a poor background might not want to indicate their parents' true income. It is also possible that students might not know their parents' income and thus, give an incorrect response.

Using parental income as a measure of students' socioeconomic status is a crude technique. There are many other factors that go into socioeconomic status besides parental income. The same could be said for using a student's answer to degree aspiration as a measure of his long-range goals.

This model does not take into account participation in the different athletic divisions in intercollegiate sports and its impact on academic performance. There is a wide disparity in time commitment for athletes that participate in division I athletics as compared to those that participate in division III athletics. This increased time commitment can make a significant difference in academic performance.

Results

The initial model which compared only the male athlete's status as either a football/basketball player or an athlete in another sport and academic GPA revealed that there was not a significant relationship between the two variables. The results of the t-Test reveal that the mean difference in GPA between football/basketball players and other athletes was not significant. The simple regression reveals that any relationship between the two variables is not significant. Thus, the early results of this study indicate that the type of sport a male athlete participates in does not have a significant impact on his academic performance.

Adding additional variables to this model and performing a multiple regression revealed interesting results. Normal expectations for which variables would have a significant impact on GPA were not observed. Neither the student-athlete's race or combined SAT score were significant predictors of academic performance. As might be expected, SES as measured by parental income was a significant predictor of academic performance. However, the standardized beta (-.12) indicates that as a student's SES increases, his GPA decreases, which creates doubts as to the validity of this measure. Even more interesting, however not unexpected, both the student-athletes' perceived academic ability and long-range goals were significant predictors of academic

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achievement. This observed result helps to confirm the results from Sedlacek and Adams-Gaston's research study. Finally, it is important to note that of the three variables in the model that were significant predictors of academic success, it is the student-athlete's perceived academic ability that is the biggest predictor of academic success in this model. Perceived academic ability had a standardized beta of .57, whereas SES had a beta of .12 and long term goals had a beta of .10. The model had an adjusted $R^2 = .41$, meaning that 41% of the variance in student-athlete's academic performance is accounted for. Finally, it is important to note that based on this model, the type of sport a male student-athlete participates in is not a predictor of academic performance. Thus, my hypothesis was not supported.

It is important to note that in performing a residual analysis of my regression model, I noticed that a few of the assumptions made with regression have been violated. First off, in looking at the Histogram plot of the Standardized Residual, it does not appear to be normal. Normality is one of the key assumptions made in regression. Given that the residuals do not appear normal, the adequacy of my model comes into question.

The next assumption made in regression is linearity, which is revealed in the Normal Probability (P – P) Plot of the Standardized Residual. Linearity is the degree to which the change in the dependent variable associated with the independent variables is constant across the range of values for the independent variables. Looking at the Normal Probability (P – P) plot reveals a very un-linear plot. So once again, the adequacy of my model comes into question.

Conclusion

The results of this study suggest serious implications for working with student-athletes. First off, this study revealed that a student-athlete's combined SAT score was not a significant predictor of academic success. This information, combined with other studies on the impact of standardized test scores, indicate that Proposition 48 should be closely scrutinized to determine if its intended effect is actually being realized.

Second, focusing on ways to boost a student-athlete's confidence in his academic ability would seem to be a good strategy for improving his academic performance. Possible ways to accomplish this might be to have workshops and meetings early in the

student-athlete's academic career to help develop skills that will enable him to gain greater self-confidence in his academic ability.

Bibliography

Amato, L., Gandar, J.M., Tucker, I.B. and Zuber, R.A. (1996). Bowl versus playoffs: The impact on football player graduation rates in the national collegiate athletic association. Economics of Education Review, v. 15, n. 2, pp. 187-195.

Dey, E. (1997). Undergraduate political attitudes: Peer influence in changing social contexts. Journal of Higher Education, v. 68, n. 4, pp. 398-413.

Easterbrook, G. (Dec. 29, 1997 - Jan. 5, 1998). How to clean up college athletics: Scholarships for jocks, after they quit playing. U.S. News & World Report, v. 123, pp. 50-51.

Hood, A.B., Craig, A.F. and Ferguson, B.W. (1992). The impact of athletics, part-time employment, and other activities on academic achievement. Journal of College Student Development, v. 33, pp. 447-453.

National Collegiate Athletic Association (1993). 1993-1994 National Collegiate Athletic Association Manual. Overland, KS: Author.

Pascarella, E.T. and Smart, J. (1990). Impacts of intercollegiate athletic participation for black-American and white-American men: Some further evidence. Unpublished manuscript, University of Illinois, Chicago.

Pascarella, E.T., Bohr, L., Nora, A. and Terenzini, P.T. (July/August 1995). Intercollegiate athletic participation and freshmen-year cognitive structures. Journal of Higher Education, v. 66, n. 4, pp. 369-387.

Russell, R.K. and Petrie, T.A. (1992). Academic adjustment of college students: Assessment and counseling. In S. Brown and R. Lent (Eds.), Handbook of Counseling Psychology (2nd ed.). New York: Wiley.

Ryan, F. (1989). Participation in intercollegiate athletics: Affective outcomes. Journal of College Student Development, v. 30, pp. 122-128.

Sedlacek, W.E. and Adams-Gaston, J. (1992). Predicting the academic success of student-athletes using SAT and noncognitive variables. Journal of Counseling & Development, v. 70, pp. 724-727.

Walter, T., Smith, D., Hoey, G., Wilhelm, R., and Miller, S. (1987). Predicting the academic success of college athletes. Research quarterly for exercise and sport, v. 58, pp. 273-279.

Table 1:

t-Test

Variable	Number of Cases	Mean	SD	SE of Mean
College GPA				
Male Football or Basketball Player	224	3.56	.919	.061
Male Athlete Other Sport	347	3.62	1.053	.057

Mean Difference = -.0497

Levene's Test for Equality of Variance: F = 5.823 P = .016

t-test for Equality of Means

Variance	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.58	569	.564	.086	(-.219, .119)
Unequal	-.59	520	.552	.083	(-.214, .114)

Simple Regression

Dependent Variable Student's Reported GPA

Independent Variable	Unstandardized coefficient	Standardized coefficient	sig
Type of athlete (football/basketball or other)	.05	.02	.56
(constant)	3.57	---	**

** p < .05

R^2 .0005
Adjusted R^2 -.0011
$F(1, 569)$ .3337 Signif F = .5637
N 571

Table 2:

Dependent Variable	Student's Reported GPA		
Independent Variable	Unstandardized coefficient	Standardized coefficient	sig
Type of athlete (football/basketball or other)	-.12	-.06	.22
Parents' Income	-.04	-.12	**
Race (Caucasian or non-Caucasian)	.15	.05	.21
SATC (combined math & verbal SAT)	.0001	.05	.40
Perceived Academic Ability	.72	.57	**
Long-Term Goals	.07	.10	**
(constant)	.76	---	**

** $p < .05$

R^2	.43	
Adjusted R^2	.41	
$F_{(6, 299)}$	37.83	**
N	306	